REMARKS

This Amendment is submitted in response to the final Office Action mailed on February 26, 2010. A Request for Continued Examination ("RCE") ($810.00) is submitted herewith. The Director is authorized to charge $810.00 for the RCE and any additional fees which may be required, or to credit any overpayment to Deposit Account No. 02-1818. If such a withdrawal is made, please indicate the Attorney Docket No. 3712174-00424 on the account statement.

Claims 6-10, 12-14 and 16-23 are pending in this application. Claims 1-5, 11 and 15 were previously canceled without prejudice or disclaimer. In the Office Action, Claims 6-10, 12-14 and 16-23 are rejected under 35 U.S.C. §103. In response, Claims 6, 12, 16, 19 and 22-23 have been amended, and Claims 8, 18 and 21 have been canceled. The amendments do not add new matter. In view of the amendments and/or for at least the reasons set forth below, Applicants respectfully submit that the rejections should be withdrawn.

In the Office Action, Claims 22-23 are rejected under 35 U.S.C. §103(a) as being unpatentable over Japanese Patent Publication No. 2002-075368 to Yamaura ("*Yamaura*") in view of U.S. Patent No. 6,258,483 B1 to Abe ("*Abe*") and as evidenced by U.S. Patent Publication No. 2002/0192137 A1 to Chaloner-Gill et al. ("*Chaloner-Gill*"). In response, Applicants have amended Claims 22-23. In view of the amendments and/or for at least the reasons set forth below, Applicants respectfully submit that, even if combinable, the cited references fail to disclose or suggest each and every element of independent Claims 22-23. Moreover, one of ordinary skill in the art would have no reason to combine the cited references to arrive at the present claims.

Currently amended independent Claims 22-23 recite, in part, a positive active material including one or more particles of lithium nickelate having a surface and having a formula $Li_yNi_{1-z}M'_zO_2$ where $0.05 \leq y \leq 1.2$ and $0 \leq z \leq 0.5$, and M' is selected from the group consisting of Fe, Co, Mn, Cu, Zn, Al, Sn, B, Ga, Cr, V, Ti, Mg, Ca, Sr and mixtures thereof; and an olivine compound having an olivine-type crystal structure and having a formula Li_xMPO_4 where $0.05 \leq x \leq 1.2$, and M is selected from a group consisting of Fe, Mn, Co, Ni, Cu, Zn, Mg and mixtures thereof, wherein: the surface of the particles of lithium nickelate are uniformly covered with the olivine compound such that the olivine compound forms a layer having a thickness of about 0.1 μm to about 10 μm around the lithium nickelate particles, a content of the olivine compound in the positive active material ranges from about 5 wt% to about 50 wt%, the particles of lithium

nickelate having a diameter of about 10 to about 20 μm, and the particle size of the olivine compound disposed on the lithium nickelate particle is one-half or less of the particle size of the lithium nickelate particle on which the olivine compound is disposed. These amendments do not add new matter. The amendments are supported in the Specification at, for example, page 2, paragraph 19; page 3, paragraph 42; page 4, paragraphs 53-54; page 7, paragraph 96; page 8, paragraph 115; page 9, paragraph 119; Fig. 3. By providing the olivine compound so as to uniformly cover the surface of the lithium nickelate particles and form a layer surrounding the lithium nickelate particles, rather than simply mixing the components such that the olivine compound adheres at random to the lithium nickelate particle surfaces, an improved charge/discharge capacity and high-temperature stability can be obtained. See, Specification, page 2, paragraph 19; page 3, paragraph 42. In addition, by forming the olivine compound layer to have the claimed thickness, the desired effects may also be ensured. See, Specification, page 4, paragraphs 53-54. In contrast, the cited references are deficient with respect to Claims 22-23.

For example, even if combinable, *Yamaura* and *Abe* fail to disclose or suggest a positive active material wherein the surface of the particles of lithium nickelate are uniformly covered with the olivine compound such that the olivine compound forms a layer having a thickness of about 0.1 μm to about 10 μm around the lithium nickelate particles as recited, in part, by independent Claims 22-23. The Patent Office asserts that *Yamaura* discloses a positive electrode active material wherein the surfaces of particles having the formula $LiNi_{1-x}M_xO_2$ are covered by $LiFePO_4$ particles. See, Office Action, page 2, lines 16-19. However, *Yamaura* merely discloses that its $LiFePO_4$ particles "adhere to the front face" or "cover the front face" of its lithium nickel multiple oxide particles. See, *Yamaura*, paragraphs 8, 10-14 and 40. *Yamaura* further teaches that its mixing conditions are such that the $LiFePO_4$ particle may be "put on the front face" of the lithium nickel multiple oxide particles. See, *Yamaura*, paragraph 43. Nowhere does *Yamaura* teach or suggest that its $LiFePO_4$ particles uniformly cover, rather than randomly adhere to, the surface of the lithium nickel multiple oxide particles such that they form a layer having the claimed thickness. Moreover, the present Specification expressly teaches that "the above-described [improved battery characteristics] effect can be obtained ***only*** by uniformly covering the surfaces of particles of lithium nickelate with the claimed compound." See, Specification, page 3, paragraph 31. As such, one of ordinary skill in the art would understand that *Yamaura* fails to disclose forming its $LiFePO_4$ particles into a layer surrounding the $LiNi_{1-x}M_xO_2$ particles.

The Patent Office relies on *Abe* merely for the teaching that it would have been obvious to modify the content of the olivine compound in the positive active material to be within the claimed range of about 5 wt% to about 50 wt%. See, Office Action, page 3, lines 4-12. The Patent Office then asserts that if the amount of olivine compound is the same as the claimed range, the claimed coating thickness would necessarily result "since the thickness is determined by the amount of coating material." See, Office Action, page 4, lines 18-20. However, contrary to the Patent Office's assertion, the present Specification teaches that even if the same amount of materials are mixed, different mixing conditions can alter how the olivine compound is formed on the surface of the lithium nickelate particles and thus the resulting battery characteristics. See, Specification, page 8, paragraphs 106 and 110-113; Fig. 5.

For example, if the claimed amount of components are simply mixed, the resulting mixture will contain the olivine compound randomly adhered to surfaces of the lithium nickelate particles and will not achieve the desired effects. See, Specification, page 2, paragraph 19; page 3, paragraph 42; page 8, paragraphs 106 and 110-113; Fig. 5. In contrast, if the same amount of components are mixed using a strong impact force such as a disk mill, a mixer/crusher or a high speed agitator/mixer, the olivine compound will form a layer having the claimed thickness which uniformly covers the surfaces of the lithium nickelate particles. See, Specification, page 6, paragraphs 78-81; page 7, paragraphs 95-96; page 8, paragraph 115; page 9, paragraph 119. Nowhere does *Abe* disclose or suggest combining the claimed amount of olivine compound and lithium nickelate particles in such a manner as to obtain a layer having the claimed thickness which uniformly covers the surfaces of the lithium nickelate particles. Thus, even if combinable, *Yamaura* and *Abe* fail to disclose or suggest a positive active material wherein the surface of the particles of lithium nickelate are uniformly covered with the olivine compound such that the olivine compound forms a layer having a thickness of about 0.1 μm to about 10 μm around the lithium nickelate particles in accordance with Claims 22-23.

Moreover, one of ordinary skill in the art would have no reason to combine *Yamaura* with *Abe* to obtain the claimed content of olivine compound because they are directed to different problems in different fields of endeavor. *Yamaura* is directed to a positive electrode active material in a non-aqueous lithium ion secondary battery wherein the positive electrode active material includes highly ordered olivine crystal $LiFePO_4$ particles adhered to the surfaces of $LiNi_{1-x}M_xO_2$ particles. See, *Yamaura*, Title; Abstract; paragraphs 1, 7-10 and 37-39. *Yamaura*

further teaches that the rotational speed of its mixer for the positive electrode material is controlled such that the temperature at the time of mixing is between 35° C and 45° C in order to prevent the formation of a collision crack in the positive electrode active particles. See, *Yamaura*, paragraphs 39-42, 53-55, 62-71 and 75-77.

In contrast, *Abe* is entirely directed to an alkaline secondary battery including a positive electrode formed by dispersing nickel hydroxide powder in an aqueous solution of strongly acidic cobalt salt and precipitating a mixture of cobalt hydroxide and nickel hydroxide particles. See, *Abe*, Title; Abstract; column 1, lines 10-13; column 3, lines 37-50. *Abe* teaches that its mixtures of cobalt hydroxide and nickel hydroxide powders provide an increased utilization rate of positive active material and are characterized in that amorphous cobalt hydroxide powders may be mixed in the nickel hydroxide powders. See, *Abe*, column 5, lines 65-67; column 6, lines 1-11. One of ordinary skill in the art would understand that the problems and process conditions involved with the preparation of highly ordered crystalline $LiFePO_4$ particles adhered to the surfaces of $LiNi_{1-x}M_xO_2$ particles and used in a non-aqueous lithium ion secondary battery are entirely distinguishable from those associated with precipitating a mixture of amorphous cobalt hydroxide and nickel hydroxide for use in an alkaline battery. For example, *Abe* is concerned with precipitating or synthesizing its cobalt hydroxide in a region of acidity or neutrality to prevent subsequent corrosion by oxidation, whereas *Yamaura* is entirely concerned with preventing collision cracks in its particles by mixing its particles in a specific temperature range. See, *Abe*, column 10, lines 9-13; *Yamaura*, paragraphs 39-43. As such, one of ordinary skill in the art would have no reason to modify the amount of olivine compound in the positive electrode material of *Yamaura* based on the teachings of *Abe* to arrive at the present claims.

Accordingly, Applicants respectfully request that the rejection of Claims 22-23 under 35 U.S.C. §103(a) to *Yamaura*, *Abe* and *Chaloner-Gill* be withdrawn.

In the Office Action, Claims 6-9, 12-13 and 16-21 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Yamaura* in view of *Abe*, further in view of International Patent Publication No. WO 00/02280 to Kurose et al. ("*Kurose*") and as evidenced by *Chaloner-Gill*. In response, Claims 6, 12, 16 and 19 have been amended, and Claims 8, 18 and 21 have been canceled. In view of the amendments and/or for at least the reasons set forth below, Applicants respectfully submit that, even if combinable, the cited references fail to disclose or suggest each and every element of Claims 6-9, 12-13 and 16-21.

As discussed previously, *Yamaura* and *Abe* fail to disclose or suggest a positive active material wherein the surface of the particles of lithium nickelate are uniformly covered with the olivine compound such that the olivine compound forms a layer having a thickness of about 0.1 μm to about 10 μm around the lithium nickelate particles as required, in part, by independent Claims 6, 12, 16 and 19 from which Claims 7, 9, 13 and 20 depend. Moreover, one of ordinary skill in the art would have no reason to combine *Yamaura* with *Abe* to arrive at the present claims for the reasons discussed previously. The Patent Office relies on *Kurose* merely for the disclosure of $LiNiO_2$ as the lithium nickelate compound. See, Office Action, page 5, lines 1-14. Nowhere does *Kurose* teach or suggest that its lithium nickelate particles are uniformly covered with the olivine compound such that the olivine compound forms a layer having a thickness of about 0.1 μm to about 10 μm around the lithium nickelate particles, nor does the Patent Office cite support for such claimed element. Thus, Applicants respectfully submit that, even if combinable, *Kurose* fails to remedy the deficiencies of *Yamaura* and *Abe* with respect to Claims 6-9, 12-13 and 16-21.

Accordingly, Applicants respectfully request that the rejection of Claims 6-9, 12-13 and 16-21 and 123 under 35 U.S.C. §103(a) to *Yamaura*, *Abe*, *Kurose* and *Chaloner-Gill* be withdrawn.

In the Office Action, Claims 10 and 14 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Yamaura* in view of *Abe* and *Kurose*, further in view of U.S. Patent No. 6,391,493 B1 to Goodenough et al. ("*Goodenough*") and as evidenced by *Chaloner-Gill*. For at least the reasons set forth below, Applicants respectfully submit that, even if combinable, the cited references fail to disclose or suggest each and every element of Claims 10 and 14.

As discussed previously, *Yamaura*, *Abe* and *Kurose* fail to disclose or suggest a positive active material wherein the surface of the particles of lithium nickelate are uniformly covered with the olivine compound such that the olivine compound forms a layer having a thickness of about 0.1 μm to about 10 μm around the lithium nickelate particles as required, in part, by independent Claims 6 and 12 from which Claims 10 and 14 depend. Moreover, one of ordinary skill in the art would have no reason to combine *Yamaura* with *Abe* to arrive at the present claims for the reasons discussed previously. The Patent Office relies on *Goodenough* merely for the disclosure of $LiMnPO_4$ as the olivine compound. See, Office Action, page 5, lines 19-22; page 6, lines 1-7. Nowhere does *Goodenough* teach or suggest a positive active material

including lithium nickelate particles which are uniformly covered with its olivine compound such that the olivine compound forms a layer having a thickness of about 0.1 μm to about 10 μm around the lithium nickelate particles, nor does the Patent Office cite support for such claimed element. Thus, Applicants respectfully submit that, even if combinable, *Goodenough* fails to remedy the deficiencies of *Yamaura*, *Abe* and *Kurose* with respect to Claims 10 and 14.

Accordingly, Applicants respectfully request that the rejection of Claims 10 and 14 and 123 under 35 U.S.C. §103(a) to *Yamaura*, *Abe*, *Kurose*, *Goodenough* and *Chaloner-Gill* be withdrawn.

For the foregoing reasons, Applicants respectfully submit that the present application is in condition for allowance and earnestly solicit reconsideration of same.

Respectfully submitted,

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